

REMARKS

This Amendment and Response is submitted in response to the Final Office Action mailed January 15, 2003, and March 15, 2003, falling on a weekend is timely filed on Monday March 17, 2003, within two months of the mailing date of the office action. Withdrawal of the final rejection and reconsideration with an eye toward allowance is respectfully requested.

Applicant has amended independent Claims 1 and 11 to further distinguish the claimed invention over the cited art. Applicant acknowledges the final nature of the rejection and has therefore limited the nature of the claim amendments in order to encourage further consideration without burden on the examination. In particular, Claims 4 and 14 have been cancelled and their limitations incorporated into Claims 1 and 11 respectively. Claims 4 and 14 have been cancelled without prejudice so that the alternative embodiments Claims 1 and 11 as originally presented may be pursued in a subsequent related application.

I. STATUS OF THE CLAIMS

After entry of this amendment, Claims 1-3, 5-13, 15-20 and 21-23 are pending in this application, claims 4 and 14 having been cancelled and claims 21-23 having been added. No new matter is added and entry of the amendments is respectfully requested. The amendments and added claims are fully supported by the claims, specification and figures as originally filed.

In particular, applicant submits that:

amendments to claim 1 are supported by claims 1 and 4, FIG. 4, and by the specification at paragraphs 13 and 17, as originally filed;

amendments to claim 11 are supported by claims 11 and 14, FIG. 4, and by the specification at paragraphs 13 and 17, as originally filed;

added claims 21 and 23 are supported by FIG. 4, and by the specification at paragraph 17, as originally filed;

added claim 22 is supported by FIGs. 1, 2 and 4, and by the specification at paragraphs 11-13 and 17, as originally filed.

Thus, no new matter is added and entry of the amendments and added claims is respectfully requested.

II. REJECTION OF THE CLAIMS UNDER 102

The Examiner rejected claims 1-20 under 35 U.S.C. 102(e) as being unpatentable over U.S. Patent 6,486,875 to O'Donnell, Jr., hereinafter O'DONNELL.

The Examiner further rejected claim 1 under 35 U.S.C. 102(e) as being unpatentable over U.S. Patent 6,335,727 to Morishita et al, hereinafter MORISHITA.

To establish a prima facie case of anticipation it must be established that each and every element set forth in the claim is found, either expressly or inherently, in a single prior art reference. M.P.E.P. §2131. Moreover, the reference must be enabling and describe the claimed invention sufficiently to have placed it in possession of a person of ordinary skill in the art. In re Paulsen, 31 USPQ2d 1671 (Fed. Cir. 1994).

The Examiner suggests O'DONNELL anticipates the claimed invention in figures 1 and 2, and at column 4, lines 1-31.

The Examiner suggests MORISHITA anticipates the invention of claim 1 in figures 1, 2, 5, 8, 25 and 36, and at column 12, lines 45-55, and column 14, lines 12-25.

Applicant respectfully disagrees, and although applicant has amended independent claims 1 and 11 to facilitate prosecution toward allowance, applicant submits that the subject matter of these claims is patentable over the known prior-art and reserves the right to pursue such claims as submitted prior to amendment here in a subsequently filed application.

Applicant submits that independent claims 1 and 11 as amended include limitations not disclosed or otherwise set forth in O'DONNELL or MORISHITA in the manner required for anticipation and therefore are not anticipated by O'DONNELL or MORISHITA.

O'DONNELL is directed to a wireless computer peripheral configured as a ball-point pen. The pen includes a ball 15 in contact with odometer-type sensors 17 which provide information about distance traversed by the ball as well as direction to generate a series of vectors which allow the recording of a written item such as print, cursive, numeral, illustration, and the like. (Col. 4, lines 1-7). The pen also includes a preprogrammed microprocessor 23. Microprocessor 23, as stated above, is operatively connected to sensors 17 so as to receive directional and distance data from the ball 15. The microprocessor 23 is

programmed to integrate all of the functions of pen 1. Further, a microprocessor 23 to convert distance and directional data, for example, into digital data so that it can plot linear movement incrementally on X and Y axes so that the excursion of ball 15, for example during writing, is converted into useful data. (Col. 4, lines 8-20). A memory cartridge 25 stores data as it is created by the pen and processed by the microprocessor 23. (Col. 4, lines 28-30).

MORISHITA is directed to a information input device 10 having an information writing section 11 including acceleration sensor 31. The acceleration sensor 31 detects an acceleration $A(t)$ in the x-, y-, and z-axis directions upon movement of the pen tip 60 of the information input device 10 (Col. 11, line 65 – Col. 12, line 5).

In contrast, the present invention is directed to an electronic pen for recording motion data relating to use of the pen. It includes a pen body, a ball mounted in the pen body, and a sensor implemented with an X-position sensor 42 and a Y-position sensor 44 located within the pen body proximate to the ball that are sampled at a particular rate and corresponding electronic signals recorded by a processor 22. (Paragraph 13). The sampling occurs at a particular rate to provide sufficient motion data to reconstruct the motion of the pen. Certain implementations can use, for example, a variable sampling rate which would sample at a higher rate for fast ball motion, and at a lower rate for slow ball motion. (Paragraph 17).

Independent Claims 1 and 11

For example, independent claim 1 as amended includes the limitation that the electronic pen comprises a circuit, electronically coupled to the sensor and the memory, for *sampling the sensor at a particular rate* and controlling transmission of a *sampled electronic signal* from the sensor to the memory. (Emphasis added)

O'DONNELL does not set forth limitation of sampling the sensor. In particular, Applicant submits that O'DONNELL describes the sensors as odometer type devices (Col. 4, line 2). Applicant submits that odometers, which measure distance traveled or moved, provide cumulative data and as such no useful information could be obtained by "sampling" the output of the sensors. Moreover, O'DONNELL discloses that the data is stored in the memory cartridge 25 as it is created, thereby implying that the data from the sensor is not sampled but read continuously. (Col. 4, lines 28-30).

Similarly, MORISHITA does not set forth limitation of sampling the output of the sensor. In particular, Applicant submits that MORISHITA describes an acceleration sensor

31 that detects an acceleration $A(t)$ in the x-, y-, and z-axis directions upon movement of the pen tip 60. A first integrator 32 integrates the acceleration $A(t)$ detected by the acceleration sensor 31 to obtain a velocity $V(t)$, and the second integrator 33 integrates the velocity $V(t)$ to obtain the absolute position $X(t)$ of the pen tip 60. Because acceleration is a change in velocity over time, MORISHITA likewise requires that the data from the sensor is not sampled but read continuously.

Thus, Applicant submits the cited references, do not set forth every element in claim 1 as amended. Accordingly, Applicant respectfully requests the rejection be withdrawn, and that claim 1 and claims 2, 3 5-10, 21 and 22 which are dependent therefrom be allowed.

With regard to independent claim 11, as amended claim 11 includes limitations similar to those of claim 1. Namely, claim 11 as amended includes the limitations that the method for recording motion data relating to use of a pen includes the steps of:

sampling the sensor at a particular rate using a circuit electronically coupled to the sensor and to the memory; and

controlling transmission of the electronic signals from the sensor to the memory using the circuit.

As noted above, O'DONNELL does not set forth sampling the output of the sensor. Thus, Applicant submits O'DONNELL does not set forth every element in claim 11 as amended. Accordingly, Applicant respectfully requests the rejection be withdrawn, and that claim 11 and claims 12, 13 15-20 and 23 which are dependent therefrom be allowed.

Claims 9 and 19

In addition to the reasons provided above for corresponding base claims 1 and 11, Applicant submits that dependent claims 9 and 19 include additional elements not set forth in O'DONNELL and are therefore are patentable over O'DONNELL.

In particular, Applicant submits that O'DONNELL does not disclose an electronic pen wherein a memory stores a default location for a start of a motion of the pen.

Contrary to the suggestion of the Examiner, O'DONNELL at Col. 4, lines 1-14, merely describes the operation of the odometer type sensors and the microprocessor.

Moreover, to serve as an anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence.” Continental Can Co. USA Inc. v. Monsanto Co., 20 USPQ2d 1746 (Fed. Cir. 1991). However, “[s]uch evidence *must make clear that the missing descriptive matter is necessarily present* in the thing described in the reference, and that *it would be so recognized by persons of ordinary skill*.” Id. (Emphasis added)

Applicant respectfully submits that the Examiner has not presented any extrinsic evidence that the missing descriptive matter is necessarily present in the pen described in O’DONNELL, nor has the Examiner presented any evidence that it would be so recognized by persons of ordinary skill.

Accordingly, Applicant respectfully requests the rejection be withdrawn, and that claims 9 and 19 be allowed.

Claims 10 and 20

In addition to the reasons provided above for corresponding base claims 1 and 11, Applicant submits that dependent claims 10 and 20 include additional elements not set forth in O’DONNELL and are therefore are patentable over O’DONNELL.

In particular, Applicant submits that O’DONNELL does not disclose using an atomic resolution storage memory for storing the data.

Contrary to the suggestion of the Examiner, Applicant respectfully submits that the memory in O’DONNELL should not be read as inclusive of atomic resolution storage memory.

As noted above, to establish a prima facie case of anticipation, the reference must be enabling and describe the claimed invention sufficiently to have placed it in possession of a person of ordinary skill in the art.

Applicant respectfully submits that the mere disclosure of a memory is not sufficient to enable a teaching that memory could include atomic resolution storage memory.

Atomic resolution storage or ARS uses an array of atom-size probe tips to read and write data on a storage media consisting of a material having two distinct physical states, or phases, that are stable at room temperature. One phase is amorphous, and the other is crystalline. Data is recorded or stored in the media by heating portions spots of the media to change them from one phase to the other. ARS systems can provide memory devices with data densities greater than about 1 terabyte per cubic centimeter.

Although providing the capability of storing data at densities several orders of magnitude greater than current magnetic and optical memories, the complexity and the cost of ARS, would not lead to one skilled in the art choosing them for such an application absent an explicit teaching to do so.

Accordingly, Applicant respectfully requests the rejection be withdrawn, and that claims 10 and 20 be allowed.

III. ADDED DEPENDENT CLAIMS

By this amendment Applicant has added dependent claims 21-23, which are dependent on base claims 1 and 11 and are patentable for at least those reasons given above with respect to those claims.

In addition, Applicant submits that dependent claims 21-23 include additional elements not set forth in the cited references and are therefore are patentable over the cited references.

In particular, added claim 21 includes the limitations that the circuit further comprises a timer for determining the particular rate at which the sensor is sampled, and wherein the circuit is capable of varying the rate at which the sensor is sampled based upon the motion of the ball.

Added claim 23 includes the limitation that the method of recording motion data relating to use of a pen further includes the step of changing the rate at which the sensor is sampled based upon the motion of the ball.

Applicant submits that the cited references do not disclose or set forth sampling the output of the sensor at all, much less do they disclose varying the rate at which the sensor is sampled based upon the motion of the ball.

With respect to added claim 22, Applicant respectfully submits that the cited references do not disclose or set forth an electronic pen comprising:

- (i) a switch for enabling a user to store in the memory a reset indication to start storing data related to the motion of the ball from a default location stored in memory;
- (ii) wherein the sensor comprises an X-position sensor and a Y-position sensor located within the pen body proximate the ball;
- (iii) wherein the X-position sensor and a Y-position sensor remotely sense ball motion by movement of features on the ball;

(iv) wherein the circuit further comprises a timer for determining the particular rate at which the sensor is sampled; and/or

(v) wherein the circuit is capable of varying the rate at which the sensor is sampled based upon the motion of the ball.

Accordingly, Applicant respectfully submits that added claims 21-23, are allowable over the cited references.

CONCLUSION

Applicant respectfully requests reconsideration of the above-identified application in view of the preceding remarks and amendments.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version With Markings To Show Changes Made".

In view of the foregoing, it is respectfully submitted that this application is now in condition for allowance, and favorable action is requested. If any matters can be resolved by telephone, the Examiner is invited to call the undersigned attorney at the telephone number listed below. The Commissioner is authorized to charge any additional fees, including fees for claims added herein but not otherwise paid for, to Deposit Account No. 08-2025.

Respectfully submitted,

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Version With Markings To Show Changes Made

IN THE CLAIMS:

Claim 1 has been amended as follows:

1. (Twice amended) An electronic pen for recording motion data relating to use of the pen, comprising:

a pen body;

a ball mounted in the pen body;

a sensor in the pen body, located proximate the ball, for detecting motion of the ball and converting the motion into corresponding electronic signals; [and]

a memory in the pen body, electronically coupled to the sensor, for receiving the electronic signals and storing corresponding data related to the motion, the data including data points related to positions of the ball and enabling extrapolation to generate lines representing the motion of the ball; and

a circuit, electronically coupled to the sensor and the memory for sampling the sensor at a particular rate and controlling transmission of the corresponding electronic signal from the sensor to the memory, the circuit including a timer for determining the particular rate at which the sensor is sampled.

Claim 11 has been amended as follows:

11. (Twice Amended) A method for recording motion data relating to use of a pen having a pen body, a ball mounted in the pen body, a memory, and a sensor located proximate the ball, comprising:

detecting motion of the ball using the sensor;

sampling the sensor at a particular rate using a circuit electronically coupled to the sensor and to the memory, the circuit including a timer for determining the particular rate at which the sensor is sampled;

converting the motion into corresponding electronic signals;

receiving the electronic signals; [and]

controlling transmission of the electronic signals from the sensor to the memory using the circuit; and

storing in the memory, based upon the electronic signals, corresponding data related to the motion, the data including data points related to positions of the ball and enabling extrapolation to generate lines representing the motion of the ball.

Claims 21 to 23 have been added as follows:

--21. (Added) The electronic pen of claim 1, wherein the circuit further comprises a timer for determining the particular rate at which the sensor is sampled, and wherein the circuit is capable of varying the rate at which the sensor is sampled based upon the motion of the ball.

22. (Added) The electronic pen of claim 1, further comprising:

a first switch for turning on and off the circuit;

a second switch for enabling a user to store in the memory a reset indication to start storing data related to the motion of the ball from a default location stored in memory; and

wherein:

the sensor comprises an X-position sensor and a Y-position sensor located within the pen body proximate the ball, and the X-position sensor and a Y-position sensor remotely sense ball motion by movement of features on the ball; and

the circuit further comprises a timer for determining the particular rate at which the sensor is sampled, and wherein the circuit is capable of varying the rate at which the sensor is sampled based upon the motion of the ball.

23. (Added) The method of claim 11, further including the step of changing the rate at which the sensor is sampled based upon the motion of the ball.--